South Carolina Energy Office

The Energy Connection

State Budget and Control Board

Winter 2006

Energy Policy Act of 2005 Encourages Efficiency and Renewable Energy

In July, Congress passed the Energy Policy Act of 2005, the first comprehensive energy legislation in over a decade. This historic bill is intended to strengthen our nation's electrical infrastructure, reduce our dependence on foreign oil, increase conservation and expand the use of clean renewable energy.

Many of the benefits for consumers are federal income tax credits that will become available January 1, 2006. Tax credits are better than tax deductions and give taxpayers dollar-for-dollar reductions on their taxes.

Following is a list of some of the most popular points of the bill of interest:

In Your Home:

- Consumers can receive federal income tax credits up to $500 on the amount they spend to make home improvements to stop energy waste. Eligible improvements include:
    - adding energy-efficient insulation, exterior doors, and/or ENERGY STAR pigmented (reflective) metal roofing – up to 10% of purchase/installation costs;
    - installing new energy efficient exterior windows – up to $200 income tax credit;
    - installing a highly efficient central air conditioner (13 SEER or greater), heat pump (13 SEER or greater) or water heater - up to $300 income tax credit. Water heater efficiency is reported in terms of the energy factor (EF). For electric water heaters, the EF range is 87 to 98; for gas-fired water heaters, the range is 51 to 86.
- Consumers can receive an income tax credit of up to 30% of the cost, or up to $2,000, for installing a solar-powered system or a solar hot water system used exclusively for purposes other than heating swimming pools and hot tubs.
- Contractors can receive a $1,000 tax credit for new ENERGY STAR qualified homes with projected annual heating and cooling energy consumption less than 70% of a comparable home. Contractors can receive tax credits of $2,000 for building homes with projected annual heating and cooling consumption less than half of that of a comparable home.
- Appliance manufacturers will benefit from producing energy efficient appliances. A limited number of tax credits are available for ENERGY STAR qualified dishwashers (up to $100); ENERGY STAR qualified clothes washers ($100); refrigerators that save 15% energy from 2001 standards ($75); refrigerators that save 20% energy ($125); or refrigerators that save 25% energy ($75).
- To encourage homeowners (and businesses) to generate their own power through solar or other means, the Energy Act requires every public electric utility to offer interconnection to the power grid and net metering upon request. Net metering allows consumers to offset their electrical use with any self-generated electricity fed into the power grid, thus earning a price for

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Continued on Page 4

Notes from the Director

John F. Clark

Recent gasoline and diesel price spikes have left many South Carolinians feeling economically vulnerable. Most of our oil comes via two pipelines leading from refineries in the Gulf Coast area of Louisiana and Texas. When hurricanes disrupted this supply, fuel availability became questionable and prices became outrageous.

South Carolina, of course, produces no oil, so we are totally at the mercy of outside forces when it comes to supplies and prices of gasoline and diesel fuel.

But do we have to be quite so vulnerable? Not necessarily. If we have the economic willpower to do so, South Carolinians can produce substantial quantities of oil substitutes from farm products and waste materials. Ethanol, an alcohol made from corn, wheat, barley or other crops, can be substituted for gasoline. Biodiesel can be substituted for diesel fuel and is made from soybeans, cooking grease, and waste grease derived from slaughterhouse products.

We can produce these fuels in South Carolina, and neither hurricanes in Louisiana nor war in the Middle East can disrupt the supply. Furthermore, consumers can save money (prices for ethanol and bio-diesel are now lower than prices for refined gasoline and diesel), and both the economy and the air quality of South Carolina will be healthier.

The state's gasoline consumption is now 23.5 billion gallons annually. By 2020, that consumption is expected to rise by 9 billion gallons, to 32.5 billion gallons. If we could substitute South Carolina ethanol for just 15 percent of the projected increase by 2020, we would, by that time, have pumped $10.6 billion into the pockets of South Carolina citizens. Because ethanol is a cleaner fuel than gasoline, we would, by 2020, have reduced carbon dioxide greenhouse emissions by almost 20 metric tons, nitrogen oxide emissions by 84 million kilograms, and substantial amounts of airborne particulate matter.

Right now, we are burning 6.8 billion gallons of diesel fuel annually, and that figure is expected to rise to 11.1 billion gallons by 2020. If we could substitute South Carolina biodiesel for 15 percent of the projected increase, we would, by 2020, have added $4.4 billion to the income of South Carolinians, and reduced emissions by 146 metric tons of carbon dioxide, 94 million kilograms of sulfur dioxide, and substantial amounts of airborne particulate matter.

Neighboring southeastern states see similar opportunities, and some are responding with incentives to attract the ethanol and biodiesel industries to their areas. Alternative transportation fuels provide a unique opportunity to benefit the economy and the environment simultaneously. Such win-win opportunities are few and far between. It may be time for South Carolina to step up to the plate.

Santee Cooper Will Burn Wood Chips at Power Plant

Santee Cooper is moving forward on a $4.4 million biomass project to burn wood chips at its Jefferies Station near Moncks Corner.

The U. S. Forest Service will sell 75,000 tons of wood annually to Santee Cooper from its tree-thinning project in the Francis Marion National Forest. This project will help reduce fire hazards, enhance the red cockaded woodpecker habitat and create a beneficial economic partnership between the two public entities. The 1.2 million tons of wood that will be chipped for Santee Cooper are from trees and limbs too small to be used at paper mills and lumber plants.

Company officials hope to have the project commercially operational by next summer. "This innovative project has many benefits and is the responsible thing to do. It creates jobs, saves the environment, keeps money in the state and helps reduce our overall costs," said Bill McCall, Santee Cooper executive vice president and chief operating officer.

It is estimated wood chips burned in a mixture of 90 percent coal/10 percent wood will produce a fuel savings of approximately $1.4 million a year, a significant figure during these times of increased fuel costs. More than 10 megawatts of green energy will be created, and the process will help reduce emissions of sulfur dioxide, nitrogen oxide, and mercury while producing no net carbon emissions.

Furthermore, the project will provide a boost on the economic development front, adding ten direct jobs, and also potentially attracting new industry to South Carolina.

The $4.4 million will be used to retrofit Jefferies and install the biomass handling system, which includes wood chippers, a storage bin and a truck tilting lift to safely and efficiently lift the 8 ½ truckloads of wood that will arrive at the station on a daily basis.

For more information, contact Laura Varn, Santee Cooper Corporate Communications, (843) 761-4133.

SCEO Successful in Securing Federal Grants

The South Carolina Energy Office has garnered $289,616 by winning five nationally competitive grants from the US Department of Energy: These "Special Project" grants are for alternative energy resource development and energy conservation and efficiency.

1. **Rebuild America - Promoting State Public Building Program ($98,000):**

This grant is in partnership with the National Association of Energy Service Companies (NAESCO). NAESCO will perform two activities to accelerate energy consumption reduction at state facilities, and provide technical support necessary to make state building programs more successful in implementing retrofits and upgrading physical infrastructure.

1. Analysis of Public Building Programs -- NAESCO will produce an analysis of successful public building programs.
2. Certification for State Energy Office Staff -- NAESCO will develop and deliver a training program for state energy office staff and public facility managers that will lead to Energy Performance Contract Specialist certification.

2. **Rebuild America - Promoting Performance Contracting in Public Colleges and Universities ($46,425):**

The South Carolina Energy Office will provide public colleges and universities information to help them take advantage of the benefits of performance contracting while avoiding some of the pitfalls inherent in the process. Case studies and technical assistance provided through this project should be especially beneficial to institutions going through the process for the first time.

3. **South Carolina Large Energy User Project ($100,000):**

This grant is in partnership with South Carolina Manufacturing Extension Partnership (SCMEP), which will initiate The South Carolina Large Energy User Project. The objective is to target the highest energy-using manufacturers in South Carolina over the next two years and provide energy assessments, training and assistance for the purpose of significantly reducing non-value-added energy use.

4. **City of Rock Hill Ethanol (E-85) Refueling Station ($25,191):**

In partnership with York Technical College and the City of Rock Hill, the SCEO will establish an ethanol (E85) fueling station in Rock Hill to support the use of E85 in public vehicle fleets. The fueling station will consist of a 12,000 gallon below-ground tank converted from an existing unleaded fuel tank. The refueling station will support 59 ethanol flex fuel vehicles currently using gasoline in the fleets of Rock Hill, Catawba Council of Governments, York County Natural Gas Authority, City of Clover, and York Technical College.

5. **Clean Cities Coalition Support Palmetto State Clean Fuels Coalition ($20,000):**

This grant will aid the Catawba Regional Council of Governments in the continued staffing of the Palmetto State Clean Fuels Coalition (PSCFC). The Clean Cities Coordinator will continue to work toward the development of a strong, successful Clean Cities program in its nine-county region as well as provide assistance to organizations throughout the state of South Carolina. Activities will be designed to achieve US DOE goals for the Clean Cities program.

SC RCC Gives Public Entities Tools to Save Resources

Over a hundred representatives of South Carolina public entities attended the third annual South Carolina Resource Conservation Challenge (SC RCC) Workshop in October. This free workshop offered by the Department of Health and Environmental Control (DHEC) and the SCEO was held at the State Museum in Columbia.

The SC RCC focuses on new and improved ways for state agencies, colleges and universities, schools and school districts, and local governments to conserve natural resources, protect the environment and, perhaps, save money in the process.

Participants were challenged to actively encourage their management and purchasing departments to increase the procurement of recycled-content and ENERGY STAR products. They were also reminded to conserve energy

Continued on Page 4

The Energy Policy Act…continued from Page 1

electricity that they produce that is equal to the price they pay utilities. Utilities have three years to implement a system to offer net metering to interested customers.

For Your Car:

- Starting in 2006, buyers of hybrid-cars and cleaner burning diesel engine (lean burn) vehicles will be eligible for tax credits ranging from $1,700-$3,000; this credit is tied to two components: hybrids that save the most fuel compared with standard gasoline-fueled 2002 models, and the vehicle's estimated lifetime fuel savings.
- A provision permits taxpayers to claim a 30% income tax credit for the cost of installing clean-fuel vehicle refueling property to be used in a trade or business of the taxpayer or installed at the principal residence of the taxpayer.
    - Under the provision, clean fuels are considered any fuel at least 85% of the volume of which consists of ethanol, natural gas, compressed natural gas, liquefied petroleum gas, and hydrogen and any mixture of diesel fuel and biodiesel containing at least 20% biodiesel.

In Your Government:

- Tougher requirements will be imposed on federal alternative fuel fleets to ensure these vehicles are actually using clean alternative fuels, not just gasoline.
- The Act includes a number of provisions to increase the use of renewable energy as a source of electricity. By 2013, the federal government must buy at least 7.5% of its electricity from renewable energy sources, including wind, solar, biomass, landfill gas, ocean, geothermal, municipal solid waste, and new hydroelectric generation achieved through improved hydroelectric plants.
- The Renewable Fuels Standard will require that gasoline sold in the United States in 2006 contain 4 billion gallons of biofuels, increasing to 7.5 billion gallons in 2012. This will reduce oil consumption by 80,000 barrels of oil a day by 2012.
- By 2015, Federal agencies must cut the energy consumption in their buildings by 20% below energy used in 2003, in terms of energy use per square foot.

To view the full text of the Energy Policy Act, visit www.energy.sc.gov.

SC RCC… continued from Page 3

and save energy dollars in their facilities by de-lamping vending machines and replacing incandescent exit lamps with LED (light emitting diode) fixtures. Also, attendees were made aware of the ease of fluorescent tube recycling through DHEC's Office of Solid Waste Reduction and Recycling Business Recycling Assistance Program (BRAP).

Other discussion topics included:

- The South Carolina Materials Exchange (SCME), a free on-line "match-making service" that provides users access to information on reusable materials available or unwanted. SCME is located at www.scdhec.gov/scme.
- The state term contract for the management of unwanted surplus electronic equipment has been awarded to Global Investment Recovery, Inc. (www.girpm.com).
- The SC Department of Commerce's Recycling Business Directory, an on-line tool that provides information on recycling and environmental service providers located in South Carolina. To learn more, call (803) 737-0239.
- Green Steps works with individual schools to take annual steps toward becoming more environmentally responsible (www.GreenStepSchools.com).

SCEO Annual Report Released

The South Carolina Energy Office recently released to the South Carolina Energy Advisory Committee its Fiscal Year 2005 Annual Report. The report is available for viewing and downloading at www.energy.sc.gov.

Highlights of the report include:

- The ConserFund energy conservation loan program for public institutions has 29 loans in its portfolio, with projected life-cycle energy cost savings of $30 million.
- 24 low-income school districts have received $2.8 million in lighting retrofit and other energy efficiency grants from SCEO.
- SCEO has enrolled 65 public institutions in its SC S.A.V.E.$. energy use software program, and is reporting annually on energy costs and consumption in over 150 state agencies, school districts and colleges and universities.
- Through RHEEEP (Rewards for Higher Education Energy Efficiency Projects), the Energy Office has provided 8 colleges and universities with 12 energy efficiency grants.
- The Energy Office conducted 11 technical workshops attended by 800 individuals representing 380 commercial, industrial and institutional energy users.
- Working with ASCEM (Association of South Carolina Energy Managers), the SCEO conducted two statewide conferences and provided Certified Energy Manager (CEM) training for 19 ASCEM members.
- South Carolina chapters of the US Green Building Council and the American Solar Energy Society were formed.
- Great progress was made in the EarthCraft House and LEED (Leadership in Energy and Environmental Design) building programs.
- SCEO provided detailed energy audits for 13 public, private and non-profit facilities.
- SCEO and the South Carolina Manufacturing Extension Partnership provided extensive energy efficiency technical assistance to manufacturing facilities through the federal Industries of the Future program.
- Landfill-gas-to-energy, solar, and biomass energy activities made great progress.
- SCEO partnered with Santee Cooper to map statewide wind energy possibilities.
- The Energy Office and the South Carolina Hydrogen Coalition developed and published a hydrogen development roadmap for the state.
- 7 new E85 ethanol fuel stations were opened and sales of ethanol, biodiesel and compressed natural gas fuels increased by 50 percent from fiscal year 2004.
- In cooperation with public and private partners, SCEO helped open three truck stop electrification facilities on I-85, displacing consumption of 170,000 gallons of diesel fuel that would have been used for truck idling when drivers are resting.
- Over a thousand teachers were trained in energy lessons for students.
- The Energy Office produced a 30-minute energy educational video for distribution to sixth grade classes, and had the video aired nationwide on ETV/PBS.
- The Energy Office increased revenue per cubic foot achieved at the Barnwell low-level radioactive waste site, earning over $14 million for education and other public purposes.
- SCEO completed work on 11 federal grant projects, and obtained another $1.1 million in new federal grants.
- Projected public institution life-cycle energy cost savings from SCEO projects over the last several years now total over $68 million.

USC Takes Lead in Biomass

The University of South Carolina will soon add to its "green" campus portfolio by adding a waste wood gasification system to its central energy system, using existing waste products from sawmills, logging and timber operations in the Midlands to produce 60,000 pounds of steam per hour (about 85 percent of campus steam needs) and about a megawatt of electricity.

The biomass energy plant, to be constructed at the corner of Sumter and Whaley streets in Columbia, will utilize 10-20 million tons of South Carolina homegrown energy each year, saving students and taxpayers almost $2 million annually while improving air quality through substantially reduced emissions of sulfur dioxides, nitrogen dioxides and particulate matter.

About $1.5 million in wood waste expenditures will be pumped into the South Carolina economy, displacing spending now going to oil and natural gas producers in Gulf States and abroad. Furthermore, campus operations will be significantly protected from future oil and natural gas supply disruptions, such as those occurring in late summer of 2005.

"The University of South Carolina is showing outstanding leadership and stewardship by serving as a model for energy use processes that stimulate the economy, reduce costs, protect the environment, and bolster energy security for our state," noted John Clark, Director of the South Carolina Energy Office.

University officials anticipate construction completion before the end of 2006.

GM Provides E85-Capable Pickup Truck for Use in South Carolina

As part of a campaign by General Motors and the Governors' Ethanol Coalition (GEC) to increase awareness of ethanol (E85) and flexible fuel vehicles, the South Carolina Department of Agriculture received use of an E85 capable Chevy Avalanche from GM for a year at no cost. The South Carolina Energy Office coordinated the transfer of the E85 Avalanche to the Department of Agriculture along with the Budget and Control Board's Fleet Management Office, which will be responsible for the maintenance of the vehicle.

Ethanol delivers similar performance as regular gasoline and is a renewable, domestically produced fuel that reduces sulfur and aromatic hydrocarbons for improved exhaust emissions performance. E85, a blend of 85 percent ethyl alcohol and 15 percent gasoline, is produced from the starch in agricultural products, primarily domestically produced corn. Growing corn actually removes CO2 from the atmosphere so that the total effect of using ethanol made from corn is a significant reduction in greenhouse emissions when compared to the use of petroleum-based fuels.

Agriculture Commissioner Hugh Weathers is promoting the E85 Avalanche in his day-to-day activities with the Department of Agriculture.

Beyond a Billion Gallon Clean Fuel Celebration

The Palmetto State Clean Fuels Coalition (PSCFC) and the South Carolina Energy Office joined over 80 Clean Cities coalitions across the nation in celebrating the displacement of more than one billion gallons of oil in October. Through the promotion of alternative fuels and alternative fuel vehicles, hybrid electric vehicles, idle reduction applications and fuel economy improvements, the Clean Cities initiative has reached the milestone of displacing one billion gasoline gallon equivalents of petroleum—enough gas to fuel two million cars for a year.

Events held in Aiken, Rock Hill, Columbia, and Greenville highlighted successes in the growth of the alternative fuels industry in South Carolina.

PSCFC stakeholder Spinx provided E85 at the reduced price of $1.85 at all 12 of their stations in Greenville and sold

Continued on Page 10

Energy Efficiency Increasing in South Carolina's Public Facilities

According to the soon-to-be-released *Thirteenth Annual Report of Energy Use in South Carolina's Public Facilities, Fiscal Year 2004*, public institutions used greater energy efficiency to avoid over $10 million in energy costs, compared to per square foot energy use levels in FY 1998. Energy use per square foot decreased 8.4 percent during this period, despite the increased use of electronic equipment.

Nevertheless, rising energy prices and increased building space caused school districts, state agencies, and public colleges to spend over $196 million in FY 2004, compared to $145 million in 1998. The total energy cost per square foot was $1.20, about 9 cents higher than in FY 2003 and 19 cents higher than in FY 1998. Electricity was the largest energy expense for public facilities ($163 million) followed by natural gas ($31 million).

The most energy efficient public institutions included Williamsburg School District, Anderson School District 4, South Carolina Forestry Commission, South Carolina Military Department (Office of the Adjutant General), USC-Aiken, Clemson University, USC-Union, and Greenville Technical College.

The South Carolina Energy Office published these and other summary statistics in four categories of public agencies: school districts, state agencies, colleges with housing, and colleges without housing. Also included in the report are feature articles on energy management at the State General Services Division, Greenville Technical College, and Winthrop University.

Copies of the report, required by state law, will be mailed to the director and the energy coordinator of each organization that reported FY 2004 energy consumption data. They will also receive a custom report comparing their organization's energy use in FY 2004 with the prior year and with other organizations of the same type.

The *Thirteenth Annual Report of Energy Use in South Carolina's Public Facilities, Fiscal Year 2004* will be available in December for download at www.energy.sc.gov. You may request a hard copy by calling the South Carolina Energy Office toll-free at 1-800-851-8899.

SCEO Sponsors CEM® Training

As a result of training sponsored by the Association of South Carolina Energy Managers and the South Carolina Energy Office, the following individuals have now completed requirements to become Certified Energy Managers:
Bill Knight, Greenville School District
Ken Kopera, Tri-County Technical College
Michael K. Mantai, Systems WorCx, LLC (Columbia, SC)
Kent Orr, USC-Upstate
Jeff Redderson, Furman University
Joesph Semiklose, Roche Carolina, Inc., (Florence, SC)

The Association of Energy Engineers (AEE), a non-profit professional society, developed the Certified Energy Manager (CEM®) program in 1981. The CEM® designation is recognized by the US Department of Energy and the Office of Federal Energy Management Programs as well as numerous state energy offices and major utilities. It has gained industry-wide acceptance as the standard for qualifying energy professionals in America and abroad. Currently, there are over 5,000 Certified Energy Managers in 48 states and 22 countries serving industry, business and government.

Classes will be held again in June and July of 2006 for facility managers interested in the taking the Certified Energy Manager Exam. Please contact Julia Parris (jparris@energy.sc.gov) for information on registering.

South Carolina's newest CEMs are Michael Mantai, Bill Knight, Kent Orr, and Ken Kopera. Not pictured: Jeff Redderson and Joseph Semikose.

Southeast Energy Efficiency Alliance Reaches Out

The first of ten Southeast Energy Efficiency Alliance (SEEA) Outreach Tour state workshops was hosted by the South Carolina Energy Office in Columbia in early November.

The SEEA, now in its initial organizing stage, is a regional nonprofit partnership of stakeholders, including businesses, utilities, governments, public utility commissions, energy service companies, manufacturers, retailers, energy and environmental organizations, low-income energy advocates, large energy consumers, and universities. Its mission is to

Continued on Page 9

Feds Award SCEO New Solar Grant

For a third time, the US Department of Energy has awarded the South Carolina Energy Office a grant to promote development and use of solar energy in the state. In this round of funding, the Energy Office has received a two-year, $40,000 grant to carry out a number of activities pursuant to the federal Million Solar Roofs Initiative (MSRI).

New activities for Phase 3 of South Carolina's MSRI effort will include:

- Installation of solar hot water systems in at least ten EarthCraft energy efficient houses;
- Facilitation of lending programs for solar improvements;
- Marketing of solar heating systems for hotel and resort swimming pools;
- Development of model subdivision covenant language that encourages solar use, along with creation of a "Solar Friendly Community" public relations designation;
- Partnership with one or more electric utilities to net meter or dual meter solar photovoltaic energy, and market the energy as Green Power.

Past and/or continuing activities include:

- Development of a South Carolina Chapter of the American Solar Energy Society;
- Creation of a portable solar demonstration model and accompanying display;
- Production of a brochure on solar financing options;
- Development of a comprehensive database on all solar installations in South Carolina;
- Presentations on solar to various groups;
- Publications on residential solar options such as solar water heating and passive solar;
- Publication of a South Carolina Million Solar Roofs newsletter;
- Responses to numerous public inquiries regarding solar;
- Promotion of solar through the SCEO website (www.energy.sc.gov).

ASCEM Salutes Top Performers

The Association of South Carolina Energy Managers (ASCEM) recently selected Pickens School District as the Energy Project of the Year and Bill Charlwood of the Office of the State Engineer as the Energy Manager of the Year.

The awards were announced in November at the fall meeting of ASCEM at Greenville Technical College. Nearly 150 facilities energy managers from around the state gathered to hear presentations on lighting, LEED, energy efficiency projects, energy codes, green products and services, stationary fuel cell applications, boilers, Smart Card systems, preventive maintenance for buildings, the Energy Policy Act, and safety training.

Representing Pickens School District are Steve Triplett, Project Manager, Marion Thomas, HVAC, and Barry Bowen, Director of Operations.

Energy Project of the Year

Pickens School District installed energy-saving lighting retrofits and Energy Management Control Systems (EMCS) for HVAC systems at 15 of their elementary schools, five middle schools, and three high schools. Annual energy savings for the lighting retrofits alone are expected to exceed $72,500.

Bill Charlwood, Energy Manager of the Year

Energy Manager of the Year

Bill Charlwood, the 2005 Energy Manager of the Year, serves as Project Manager, Mechanical Engineer in the Office of the State Engineer. Part of his duties include promoting and facilitating energy performance contracts in the state.

"Retaining savings via performance contracting was enacted by the Legislature in 1993. However, no real process for procurement, checks and balance were created," said Walter Hardin, Associate Vice President for Facilities Management for Winthrop University. "Bill Charlwood was assigned this daunting task in 2001. He worked creatively and closely with five state agencies to create RFQ, RFP and contract templates that are acceptable to all levels of the State procurement approval process. These were written to be fair to both agencies and energy service companies, and ensure accountability and verification of savings for all parties. His calm yet knowledgeable manner keeps all at ease," remarked Hardin.

"When Not in Use, Turn off the Juice"

The US Department of Energy's Energy Awareness Month theme, "When Not in Use, Turn Off the Juice," was an easy sell in October. With everyone still reeling from the devastating effects of Hurricanes Katrina and Rita, not many people needed to be reminded to conserve resources. And with the gloomy reports of high energy bills to come this winter, consumers are arming themselves with information, caulking, weatherstripping, and other energy-saving products to ward off high energy bills.

School districts were shown how energy savings can be transferred to the classroom. Each school district was sent a personalized poster showing their energy consumption for fiscal year 2004, and what a ten percent energy savings could potentially buy for the school system. For example, Greenville school district spent $7,776,383.73 on energy in FY04. A ten percent savings in energy would equal $777,638.37; this would purchase 1,555 additional computers for the district, or allow for $777,638.37 in supplies for teachers.

Additionally, several sixth-grade classes across the state were participants in the EPA's "Change a Light, Change the World" campaign. These classes and schools pledged to replace burned-out incandescent bulbs with ENERGY STAR-qualified compact fluorescent lights, saving money, the environment, and staff time.

Sherry Kopf, representing the SCEO presents CFLs to Marsha Peacock, sixth-grade science teacher at Leavelle McCampbell Middle School, and Principal Russell Gunter of Langley-Bath-Clearwater Middle School after they pledged to "Change a Light, Change the World."

Cheaper Clean Fuel on the Way to York County

York County's first ethanol pumps will be coming to Fort Mill, Clover, Rock Hill and Sharon by year's end. Plenty of cars already on the road can run on ethanol, an alternative fuel made mostly from corn. But so far there hasn't been a local place to fill up with the stuff.

Enter Mike Granger and Ray Thomas, a couple of entrepreneurs who say ethanol is just a good business idea. Granger co-owns the Fairway BP on S.C. 160 across from Baxter Village. Thomas distributes petroleum products -- and now, ethanol, blended fuel and biodiesel -- to several gas stations in York County.

The Fairway BP has its pump installed, and Granger plans to build a Conoco Station at the corner of S.C. 160 and Springfield Parkway next year that also will carry ethanol.

Thomas plans to supply ethanol blends and biodiesel, a blend of diesel and soybean oil, to the Clover Shop'N'Save on U.S. 321, the Red Rocket Express at Exit 75 off Interstate 77 and other locations in York County, including a store in Sharon. Thomas' petroleum company is based in Shelby, N.C., and he's already opened up some of the first ethanol stations in that state. "It's good for the local economies, good for farmers, good for America," Thomas said of ethanol, which proponents tout as a way to reduce dependence on foreign oil.

Ethanol is also cleaner burning, said Wendy Bell of the Catawba Council of Governments. That's especially important after the U.S. Environmental Protection Agency's decision last year to lump the eastern part of York County with the Charlotte area, saying the region wasn't meeting new, stricter standards on ground-level ozone, or smog. The Charlotte region could lose federal road money if it doesn't make its air quality better.

Bell has helped Granger get money to put in the new pumps, partly from a settlement between the EPA and Willamette Industries. That fine set aside about $450,000 for S.C. ethanol projects. Trouble was, there weren't any takers for several years, according to Bell. "People were wary of getting into alternative fuels. It was unknown. They didn't need another product to sell because gasoline sells itself."

Ethanol has lately cost less than regular unleaded, but vehicles running on ethanol get slightly worse mileage than with regular gasoline, Bell said. Still, ethanol does tend to be cheaper overall, she said.

The City of Rock Hill will get its own ethanol station by year's end to fill up vehicles in its fleet. But that station will be for city vehicles, not for the public.

Both Thomas and Granger said a big factor in their decision to offer ethanol was to help the country reduce its dependence on foreign oil. "'Every time I write a check for one of these fuels I thank God this money is staying in the U.S. and not going overseas," Thomas said.

Adapted from an article in The Rock Hill Herald; written by Rebecca Sulock, November 11, 2005.

How Are We Doing?
You Tell Us!

Please take our online survey at www.energy.sc.gov and tell us how we can improve The Energy Connection.

Southeast Energy…continued from Page 7

build regional partnerships to promote and achieve energy efficiency for a cleaner environment, a more prosperous economy, and higher quality of life.

Among the presenters and other participants in the South Carolina meeting were the South Carolina Energy Office, South Carolina Institute for Energy Studies, Sustainable Universities Initiative, Sierra Club, Governor's Office of Economic Opportunity, SC Office of Regulatory Staff, SC Department of Health and Environmental Control, Progress Energy, Duke Energy, South Carolina Electric and Gas Company, Savannah River National Laboratory, South Carolina Manufacturing Extension Partnership, Environmental Defense Fund, Piedmont Natural Gas, Santee Cooper, US Department of Energy Southeast Regional Office, architects and engineers, energy conservation companies, biomass energy suppliers, and large energy users.

SEEA, a regional affiliate of the national Alliance to Save Energy, is based in Atlanta and represents Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia. For more information, please contact Chris White, SEEA Interim Director, cwhite@seea.us, 866-900-7332, or visit www.seea.us.

Beyond a Billion…continued from Page 6

over 8,500 gallons of E85 in one day. In Rock Hill, the City of Rock Hill announced the receipt of the grant award from the US Department of Energy to install ethanol refueling infrastructure, and York Tech presented the Clean Energy Leadership Award to the City of Rock Hill.

In Aiken, the City of Aiken announced its pilot program to test B20 (20 percent biodiesel/80 percent diesel) in part of its public works fleet in partnership with stakeholder United Energy. United Energy also announced opening of its bulk biofuels facility at 2470 Fish Hatchery Road in West Columbia where both ethanol and biodiesel are now being sold.

In Columbia, the PSCFC, SC Energy Office and the SC Department of Agriculture featured an event at the South Carolina State Fair to ceremonially pump the billionth gallon of fuel into the Department of Agriculture's E85 capable Chevy Avalanche.

Mitch Perkins of the SC Energy Office fills the Avalanche with the ceremonial "billionth gallon."

Biofuels Showcase

The Palmetto State Clean Fuels Coalition and the SC Energy Office hosted a Biofuels Showcase in November at the Colonial Center in Columbia. The event featured speakers from the National Biodiesel Board, National Ethanol Vehicle Coalition, and FuelCellSouth. They educated participants on ethanol (E85), biodiesel (B20) and hydrogen alternative transportation fuels, and provided information about opportunities to use these domestically-produced and cleaner burning fuels.

Fleet managers from Georgia Power and City of Rock Hill provided their experiences with converting fleets to alternative fuels such as ethanol, biodiesel, and compressed natural gas (CNG). The showcase also included a Ride-and-Drive event where attendees were able to ask questions of GM, Ford and DaimlerChrysler representatives, and then test drive ethanol and hybrid vehicles.

For more information on alternative fuel activities in South Carolina, please visit www.palmettocleanfuels.org.

From Petroleum Gas to Biomass: Farm Bureau and SCEO Offer "Ag in the Classroom"

South Carolina middle and high school teachers have a greater appreciation for potential energy sources from agricultural products and are better equipped to teach students about food, fiber, and forestry products after receiving complimentary lesson plans entitled "Biomass – Lesson Plans on Alternative Fuels." The plans, as well as a teacher workshop on the topic, were co-sponsored by the SC Farm Bureau Federation (SCFB) and the South Carolina Energy Office (SCEO) through a grant provided by the US Department of Energy's Special Projects Program.

Each lesson, authored by South Carolina teachers, focuses on environmentally-friendly energy resources derived from agricultural by-products known as biomass. Lesson plans are aligned to the South Carolina Curriculum Standards, and activities and extensive background information are included. Lesson plans were sent to every middle and high school in South Carolina with any combination of grades 7 through 12, as well as to every school district's Science Curriculum Coordinator.

A limited number of the lesson plan packets are available to South Carolina teachers while supplies last. The entire packet is also available for download at the South Carolina Ag in the Classroom website, www.agclassroom.org/sc, and also at the SCEO website, www.energy.sc.gov (click on "K-12 Education").

SCFB's Ag in the Classroom program offers free grade-specific lesson plans, related materials, and year-round in-service workshops to South Carolina teachers, schools and school districts. For more information or to schedule an in-service workshop, call Ag in the Classroom Director Maria Samot at 1-800-628-4571 ext. 4409.

The South Carolina Energy Office offers 12 energy lessons, taken from the *Action for a Cleaner Tomorrow* curriculum supplement. These K-12 lessons and many other materials are available from the SCEO or can be downloaded from their website at www.energy.sc.gov. For more information, contact Reneé Daggerhart at 1-800-851-8899 or rdaggerhart@energy.sc.gov.

City of Myrtle Beach Cleaned Up by "Bees"

By Perry Shelly, City of Myrtle Beach

In 2003, the City of Myrtle Beach began investigating alternatives to alleviate odors emanating from the city's 50-acre wastewater lagoon. The lagoon was experiencing significant accumulation of solids, and the bottom coarse bubble aerators were struggling to maintain dissolved oxygen levels due to clogging. When the aerator's bubbles made it to the surface, the bubbles were bringing up anaerobic solids and odors. The city was looking at the possibility of having to dredge the lagoon at a cost of 6 or 7 million dollars or find another way to remove the solids and/or change the system of aeration so as not to disturb the sludge layer just below the liquid surface.

One of the alternatives investigated for aeration of the lagoon was SolarBees. The SolarBee is a floating solar-powered circulator, which also utilizes battery storage for 24-hour operation during low sunlight conditions. The SolarBee draws up to 10,000 gallons per minute from three feet below the machine and spreads it across the top of the lagoon in a near-laminar-flow manner for long-distance coverage and continuous surface renewal. The mixing action greatly accelerates the biological and chemical processes that clean up wastewater. The gentle laminar movement across the surface of the lagoon also provides favorable conditions for the growth of green algae, which also produces oxygen.

In June of 2004, Bowker & Associates, a firm specializing in the control of odors from waste handling facilities, was retained to evaluate methods of mitigating odor impacts from the lagoons. Bowker & Associates conducted a sampling program at the lagoon to characterize the wastewater, as well as air emissions from the lagoon surface. Dissolved oxygen and ambient hydrogen sulfide (H2S) tests of the first three cells in the lagoon were conducted in June of 2004. The ambient H2S ranged from a low of zero ppm in cell #8 to as high as 98 ppm in cell #1 and the dissolved oxygen levels throughout the lagoon averaged approximately 0.5 mg/L.

In January of 2005, the City of Myrtle Beach rented and installed six SolarBees in the first three cells of the lagoon. Upon installation, the coarse bubble bottom aeration was shut off to the first three cells and the coarse bubble bottom aeration was continued on cells 4 through 8.

Over the next few months, Bowker and Associates conducted several sample events to determine the conditions in the lagoon. This test period coincided with the peak tourist season and the hottest weather in August. Conditions found in August were much improved over the conditions in June, 2004. Dissolved oxygen levels throughout the first three cells ranged from a 1.8 mg/L to as high as 4.5 mg/L. The ambient H2S levels were zero on all points except for one, which had only a 2.7 ppm level. These improved conditions were realized using only solar and/or battery power. The payback alone on electrical savings by no longer having to use two 125 HP blowers is projected to pay for the unit's capital cost in as few as four years. Another benefit of having the lagoon aerated by the SolarBees is that staff are no longer disturbing the anaerobic microorganisms in the sludge layer beneath the surface, which will allow them to do a better job of sludge decomposition.

The City is planning on budgeting for an additional five SolarBees to be purchased and installed in the last five cells of the lagoon in 2006. Once they are installed, electrical savings will be approximately $100,000 per year.

Perry is the Superintendent of the Water Reclamation Facility (WRF) for the City of Myrtle Beach. For more information, contact Perry at PShelley@cityofmyrtlebeach.com or at (843) 918-2112.

USDA Awards Energy Grant to Saluda County Farmer

A Saluda County poultry farmer, James R. Riddle, was recently awarded $77,821 in grant funds by the US Department of Agriculture, through the USDA Renewable Systems and Energy Efficiency Improvement Program (Farm Bill Section 9006), which offers financial assistance to agricultural producers and rural small businesses for the purpose of making energy efficiency improvements.

The South Carolina Energy Office, in coordination with the SC USDA Office in Columbia and the Saluda County USDA office, assisted with grant preparation and specific energy assessment documentation.

Riddle is converting his farm from a turkey growing facility to a chicken (broiler) facility, and included a number of energy efficiency improvements for his grower houses, such as improved insulation and ventilation systems, installation of high efficiency fans and water pumps, energy efficient fluorescent lighting, and high technology brooder systems. The total project cost is $311,284, with Riddle paying $233,463 (75%) from a USDA loan.

The energy improvements from this project are expected to reduce total energy costs by 28 percent, and reduce energy cost per thousand pounds of broilers by 47 percent, from $5.59 to $2.98.

For more information on this project or the USDA Renewable Systems and Energy Efficiency Improvement Program, go to http://www.rurdev.usda.gov/rbs/farmbill/, or contact Gregg White at gregg.white@sc.usda.gov, (803)-765-5881).

ConserFund Loan Program Churns Out Savings

The South Carolina Energy Office (SCEO) continues moving forward to promote energy efficiency improvements in the public sector through its low-cost loan program, ConserFund. In Fiscal Year 2005, ConserFund closed three loans totaling over $680,000 to a public college, school district and public agency. These funds financed projects consisting of HVAC upgrades and energy-efficient lighting retrofits. After implementation and completion of these projects, the borrowers, along with South Carolina taxpayers, will benefit from an estimated annual savings of over $134,000 per year in energy costs.

Fiscal Year 2006 is off to a great start, as the loan program has already closed two loans (one in July and one in September) totaling $373,668. These energy savings projects will bring annual energy cost savings of over $78,000 per year. The total ConserFund loan portfolio contains more than $9.3 million for the implementation of energy efficiency improvements statewide.

Eligible entities are school districts, state agencies, local governments, public and private colleges and universities, and non-profit organizations. The interest rate is 3.25 percent, and repayment can be extended to as long as ten years.

For more information on the ConserFund loan program, contact Michael Hughes at mhughes@energy.sc.gov, or (803)737-7177 at the South Carolina Energy Office.

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